MAT-8691US

Application No.: 10/534,342
Amendment Dated: December 12, 2008
Reply to Office Action of: October 17, 2008

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

- (Cancelled).
- (Previously Presented) A plasma display device provided with a plasma display panel comprising a plurality of columns of discharge cells having one of a single color and multiple colors, and a phosphor layer disposed in each of the discharge cells, the phosphor layer having a color corresponding to the each discharge cell for emitting light when excited by ultraviolet rays, wherein

the phosphor layer is a mixed phosphor and includes a green color phosphor, the green color phosphor being a mixed phosphor comprising:

- a phosphor of formula M_{1-a} ($Ga_{1-x}AI_x$)₂ O_4 :Mn_a (where "M" denotes one of Ca and Sr, $0.01 \le a \le 0.06$, and $0.1 \le x \le 1.0$), and
- $a \ \ phosphor \ \ of \ \ formula(Y_{1-a-y}Gd_a) \ \ (Ga_{1-x}Al_x)_3 \ \ (BO_3)_4; Tb_y \ \ (where \ \ 0 \leq a \leq 1, \\ 0.1 \leq x \leq 1.0, \ 0.02 \leq y \leq 0.1, \ 0.08 \leq 1\text{-}a\text{-}y \leq 0.98), \ and$
- a phosphor of formula $(Y_{1-a-y}Gd_a)$ $(Ga_{1-x}AI_x)_3$ $(BO_3)_4$: Ce_y , Tb_y (where $0 \le a \le 1$, $0.1 \le x \le 1.0$, $0.02 \le y \le 0.1$, $0.08 \le 1-a-y \le 0.98$).
- 3. (Previously Presented) A plasma display device provided with a plasma display panel comprising a plurality of columns of discharge cells having one of a single color and multiple colors, and a phosphor layer disposed in each of the discharge cells, the phosphor layer having a color corresponding to the each discharge cell for emitting light when excited by ultraviolet rays, wherein

the phosphor layer is a mixed phosphor and includes a green color phosphor, the green color phosphor being a mixed phosphor comprising:

342 MAT-8691US

Application No.: 10/534,342
Amendment Dated: December 12, 2008
Reply to Office Action of: October 17, 2008

a phosphor of formula M_{1-a} ($Ga_{1-x}AI_x$) $_2$ O_4 : Mn_a (where "M" denotes one of Ca and Sr, $0.01 \le a \le 0.06$, and $0.1 \le x \le 1.0$) and

- a phosphor of formula($Y_{1-a-y}Gd_a$) BO₃:Tb_y (where $0 \le a \le 1$, $0.02 \le y \le 0.4$, $0.08 \le 1$ -a-y ≤ 0.98).
- 4. (Previously Presented) A plasma display device provided with a plasma display panel comprising a plurality of columns of discharge cells having one of a single color and multiple colors, and a phosphor layer disposed in each of the discharge cells, the phosphor layer having a color corresponding to the each discharge cell for emitting light when excited by ultraviolet rays, wherein

the phosphor layer is a mixed phosphor and includes a green color phosphor, the green color phosphor being a mixed phosphor comprising:

- a phosphor of formula M_{1-a} ($Ga_{1-x}AI_x$)₂ O_4 : Mn_a (where "M" denotes one of Ca and Sr, $0.01 \le a \le 0.06$, and $0.1 \le x \le 1.0$) and
- $\begin{array}{ll} a \ \ phosphor \ \ of \ \ formula \ \ (Y_{1-a-y}Gd_a)_3 \ \ (Ga_{1-x}Al_{\chi})_5 \ \ O_{12}:Tb_y \ \ (where \ \ 0 \leq a \leq 1, \\ 0.1 \leq x \leq 1.0, \ 0.02 \leq y \leq 0.4, \ 0.08 \leq 1\text{-}a\text{-}y \leq 0.98). \end{array}$
 - 5,-6, (Cancelled).
- 7. (Previously Presented) A plasma display device provided with a plasma display panel comprising a plurality of columns of discharge cells having one of a single color and multiple colors, and a phosphor layer disposed in each of the discharge cells, the phosphor layer having a color corresponding to the each discharge cell for emitting light when excited by ultraviolet rays, wherein

the phosphor layer includes any of a green color phosphor, a blue color phosphor and a red color phosphor,

the green color phosphor being a mixed phosphor comprising:

a spinel system of formula M_{1-a} ($Ga_{1-x}AI_x)_2$ O_4 : Mn_a (where "M" is at least one of Ca and Sr, $0.01 \le a \le 0.06$, and $0.1 \le x \le 1.0$), or

Application No.: 10/534,342 MAT-8691US

Amendment Dated: December 12, 2008 Reply to Office Action of: October 17, 2008

a phosphor of yttria system comprising formula $(Y_{1-a-y}Gd_a)$ $(Ga_{1-x}Al_x)_3$ $(BO_3)_a$:Tby (where $0 \le a \le 1$, $0.1 \le x \le 1.0$, $0.02 \le y \le 0.1$, $0.08 \le 1-a-y \le 0.98$), and

 $\label{eq:continuity} \begin{array}{llll} & & & & & & \\ formula & & & & & \\ (Y_{1-a-\gamma}Gd_a) & & & & \\ (Ga_{1-x}Al_x)_3 & & & & \\ (BO_3)_4:Ce_y, & & Tb_y & & \\ (where & 0 \leq a \leq 1, \\ 0.1 \leq x \leq 1.0, \, 0.02 \leq y \leq 0.1, \, 0.08 \leq 1\text{-a-y} \leq 0.98), \, and \\ \end{array}$

 $\label{eq:bounds} \begin{array}{lll} & & & & \\ & \text{formula} & (Y_{1-a-y}Gd_a) & & BO_3:Tb_y & (where & 0 \leq a \leq 1, & 0.02 \leq y \leq 0.4, \\ & 0.08 \leq 1\text{-}a\text{-}y \leq 0.98, \text{ and} \end{array}$

formula $(Y_{1-a-y}Gd_a)_3$ $(Ga_{1-x}Al_x)_5$ O_{12} : Tb_y (where $0 \le a \le 1$, $0.1 \le x \le 1.0$, $0.02 \le y \le 0.4$, $0.08 \le 1$ -a-y ≤ 0.98), or

a spinel system of formula M_{1-a} ($Ga_{1-x}AI_x$) $_2$ O_4 : Mn_a (where "M" is at least one of Ca and Sr, $0.01 \le a \le 0.06$, and $0.1 \le x \le 1.0$), and

a phosphor of yttria system comprising formula $(Y_{1-a-y}Gd_a)$ $(Ga_{1-x}Al_x)_3$ $(BO_3)_4$: Tb_y (where $0 \le a \le 1$, $0.1 \le x \le 1.0$, $0.02 \le y \le 0.1$, $0.08 \le 1$ -a- $y \le 0.98$), and

$$\label{eq:continuity} \begin{split} & \text{formula} & & (Y_{1-a-y}Gd_a) & (Ga_{1-x}Al_x)_3 & (BO_3)_4 : Ce_y, & Tb_y & (\text{where} & 0 \leq a \leq 1, \\ 0.1 \leq x \leq 1.0, \, 0.02 \leq y \leq 0.1, \, 0.08 \leq 1\text{-}a\text{-}y \leq 0.98), \, \text{and} \end{split}$$

 $\label{eq:continuous} \begin{array}{lll} & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ &$

 $\label{eq:continuity} formula \quad (Y_{1-a-y}Gd_a)_3 \quad (Ga_{1-x}Al_x)_5 \quad O_{12}: Tb_y \quad (where \quad 0 \leq a \leq 1, \quad 0.1 \leq x \leq 1.0, \\ 0.02 \leq y \leq 0.4, \ 0.08 \leq 1\text{-}a\text{-}y \leq 0.98), \ and$

the blue color phosphor is a phosphor of $BaMgAl_{10}O_{17} \\ : Eu$ or $BaSrMgAl_{10}O_{17} \\ : Eu$, and

the red color phosphor is a phosphor of Y2O3:Eu or (Y, Gd)BO3:Eu.

8.-11. (Cancelled).